Douglas B. MacDonald
Secretary of Transportation

Paula Hammond
Chief of Staff

John Conrad
Assistant Secretary

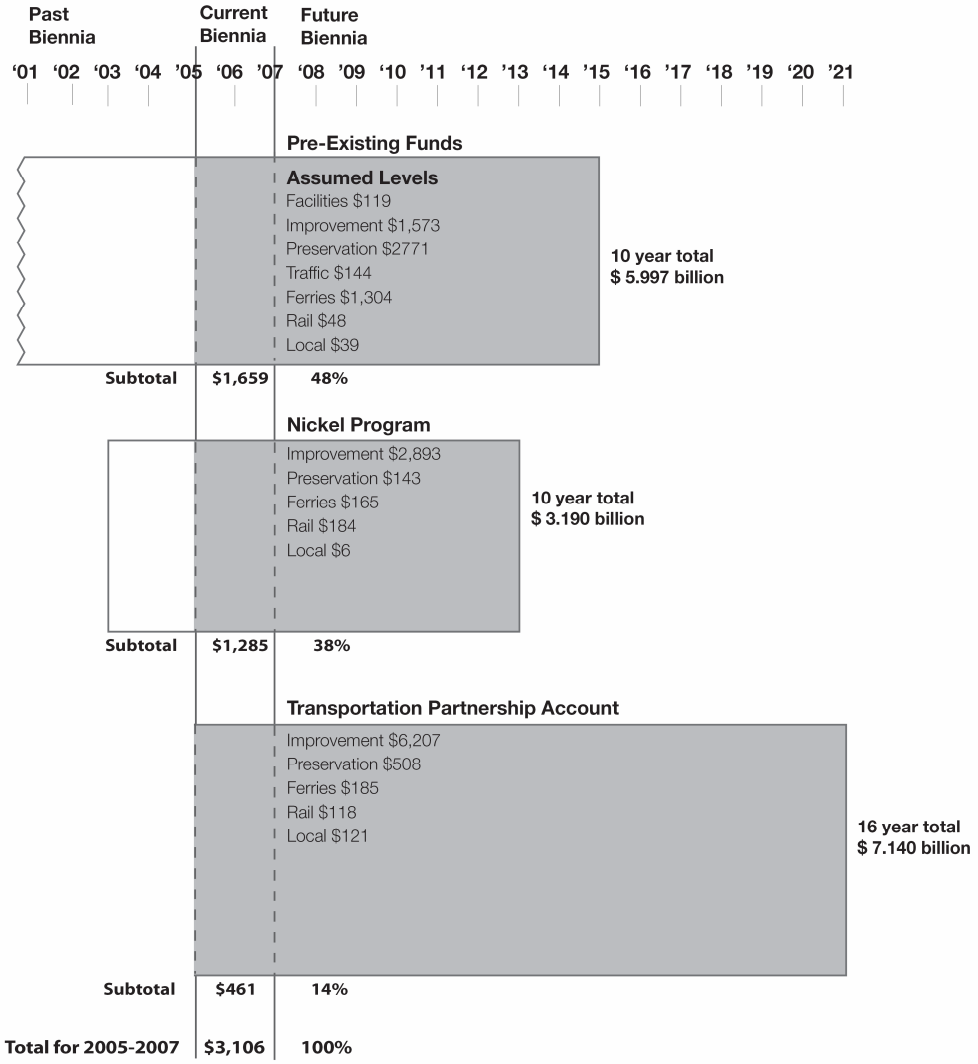
February 8, 2006 GMAP Report

Project Delivery and Risks

Overview: WSDOT's Capital Program

Long-Term Fund Sources Outlook

Dollars in Millions



Analysis of Recent Construction Complete Results for Highway Projects:

In the six months from July 1, 2005 to December 31, 2005 WSDOT completed construction on highway projects as follows:

111 PEF projects at a total project cost[1] of $218.8 million (versus a total budget[2] of $212.6 million). Several projects that need review for schedule and budget issues are described on Slide 3.

7 Nickel projects at a total cost of $99.3 million (versus a total budget of $98.8 million). All of these Nickel projects met schedule and budget expectations.

Two TPA projects (cable median barrier) at a total cost of $1 million (all other TPA expenditures were delayed pending the outcome of Initiative 912). The two completed projects came in significantly under budget.

Ferries, rail and local programs projects were also completed. These projects will be discussed in future presentations.

[1]Total project cost covers all phases of the project planning and preconstruction engineering, right of way and construction (including sales tax).
[2]Total budget is based on the "last legislative expectation" definition as settled in the deliberation of the Transportation Working Group.

Recent "Construction Complete" Results: Budget Performance[1]

Nickel and TPA Projects:

- The nine recently completed projects (July 1, 2005 to December 31, 2005) all showed satisfactory performance against budget expectations.

Pre-Existing Funds Projects:

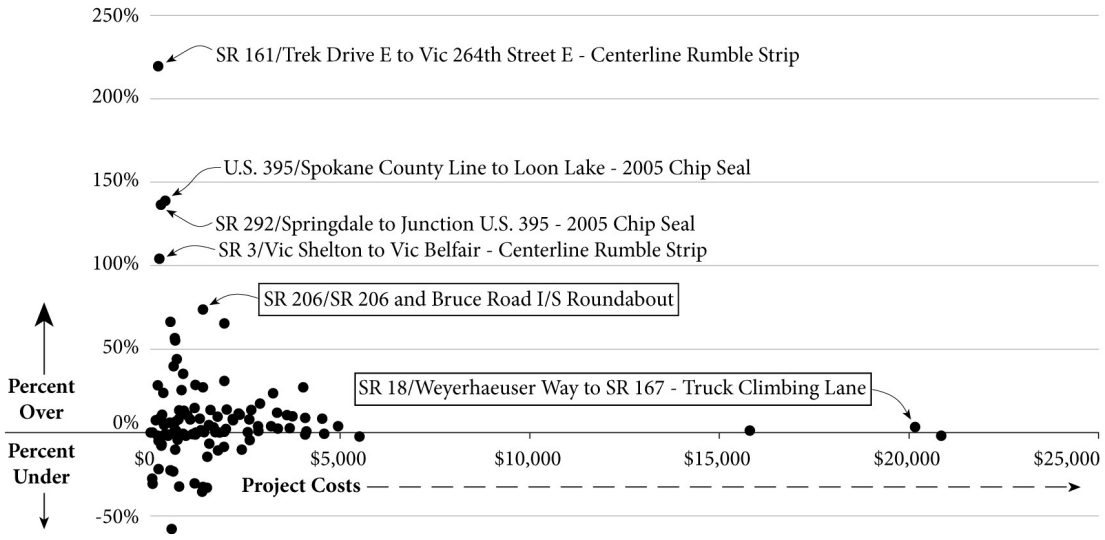
- The scatter graph plots the budget results for every one of the 111 projects. All but five of the projects were less than $5 million in size. The cost results for projects of less than $5 million in size are distributed above and below budget in ways that maintain the overall program within the expected budget envelope. Four very small projects (two centerline rumble strip projects and two chip seal pavement resurfacing projects) showed significant percentage overruns not indicative of basic program issues (see back-up slide).
- Two projects deserve special comment:

  SR 206 – Bruce Road Intersection Roundabout
  This project was the first roundabout project constructed in WSDOT's Eastern Region. WSDOT underestimated the public outreach and education required for this type of project. Also, increases in oil, concrete, and other material prices added to the budget overrun on this project. The total overrun was about $586,000 on a budget of $796,000.

  SR 18/Weyerhaeuser Way – Truck Climbing Lanes

  As construction of walls and the Peasley Canyon Road Bridge widening progressed, discrepancies between design elevations and actual original ground elevations at bridge piers and along walls were discovered resulting in major design changes to retaining walls, bridge abutment walls and the ITS system. These issues led to an overall cost of about $620,000 on a $19.5 million project. Survey error, the issue here, is an area WSDOT must closely guard against.

Percent Variance from Last Legislative Expectation to Final Program Cost for 111 PEF Projects Completed During the Quarters 1 and 2 of the 2005-07 Biennium



Action	Who	Date
Continue monitoring and collecting budget performance as projects are completed.	Assistant Secretary, Project Control and Reporting Director, Program Management Staff and Statewide Program Management Committee	On-going

Data Note: Additional information on PEF projects over budget is available in the **backup slides**. [1]Budget performance is based on the last legislative expectation.

Recent "Construction Complete" Results: Schedule Performance

Nickel and TPA Projects:

- The nine recently completed projects all showed satisfactory performance against schedule expectations. All met scheduled or achieved early delivery

Pre-Existing Funds Projects:

Below is a sample list of completed PEF projects that did not meet schedule targets:

SR 164/158th Ave SE		**Action**
Delayed one quarter.	Right of way certification required more time then planned due to the length of time necessary to acquire approval from an unusually high number of landowners for parcels on tribal trust land.	The project had inadequate early identification of potential right of way problems.
I-5/Nisqually River Br. To Fort Lewis Rd. – Paving		**Action**
Delayed four quarters.	The contractor had problems adapting to new asphalt design procedures and processes that delayed the contractor receiving approval of the pavement design. This delay pushed the start of work into late summer when the contractor was caught by unseasonably wet weather. This, in turn, forced the work into the following spring.	The project schedule placed the advertisement date too late and WSDOT was not aggressive enough in pursuing the contractor's schedule submission after the contract was awarded.
I-5/Union St to NE 103rd Vic & I-5/James St Vic to Union St Vic – Pavement Reconstruction		**Action**
Both projects were delayed four quarters.	These projects are located in the heart of downtown Seattle. They were both delayed to allow adequate time to coordinate traffic impacts due to construction with the city of Seattle and local businesses. The combination of location, physical constraints, local community events, proximity to nearby residential and business communities, and regional traffic levels created complex coordination and scheduling requiring additional time.	The schedule was unrealistic in underestimating the coordination and approval time for the special setting of these projects – the first major pavement replacement projects on I-5 in downtown Seattle. This is the kind of issue WSDOT senior management is now trying to isolate and manage more proactively through the quarterly project review meetings held with project staff in each region. Better schedule and coordination tracking tools through the expected improvement in management information systems will also help. These projects, despite the delays, were some of the most challenging and successful projects WSDOT completed last summer.

Recent "Advertise for Construction Bid" Results:

(Nickel Projects. No TPA projects)

Schedule results for projects advertised between July 1, 2005 and December 31, 2005

7 Nickel projects were advertised for construction in the last two quarters of calendar 2005. The schedules for advertising these projects were not met in 4 cases. They were:

SR 3/SR 303 Interchange (Waaga Way) - New Ramp		
The advertisement date has been delayed 2 quarters from January 2005 to August 2005.	Project redesign and issues with environmental permitting have delayed the advertisement of this project from January 2005 to August 2005. The Army Corps of Engineers determined the project required an individual permit rather than the anticipated nationwide permit. The change in the permit status will added a water quality certification requirement from the Department of Ecology. GNB for 12/31/04.	Communicate with permitting agencies earlier in the preliminary design phase and clearly communicate project intent and scope.
SR 543/I-5 to International Boundary		
The advertisement date has been delayed 2 quarters from April 2005 to November 2005.	This project encountered right of way acquisition delays in the vicinity of the border crossing, extended permitting time frames for wetlands permitting, and redesign efforts to avoid over-budget cost pressures from unexpected soil conditions and projected traffic control expense for the construction period. GNB for 3/31/05 at page 15 ("Watch List") See Slide 11 for discussion of the bid results for this project.	
SR 9, Nooksack Rd Vicinity to Cherry St		
The advertisement date has been delayed 5 quarters from July 2004 to December 2005.	Right of way acquisition proceeded slower than planned. GNB for 3/31/05 at page 5 ("Summary of Project Advertisements, Awards and Completions") GNB for 6/30/03	
SR 167, 15th St SW to 15th St NW – HOV		
The advertisement date has been delayed 8 quarters from December 2003 to December 2005.	Plans earlier placed "on the shelf" because of funding suspensions had to be revised by WSDOT for current stormwater treatment, wetlands mitigation and floodplains requirements, causing a delay in the ad date from the originally scheduled date.	

Cumulative advertisement performance results for Nickel projects advertised as of December 31, 2005

The *cumulative record* of 46 projects advertised to date under the Nickel Program (including the 7 projects advertised in the last two quarters) is 37projects advertised on-time or early and 9 projects advertised late.

As of December 31, 2005, 20 Nickel projects in total have now been completed. Twenty-six are now in the construction phase. *A **backup** slide lists all 26 projects and summarizes current "watch list" issues for several of these projects now being prepared for the Gray Notebook scheduled for publication in mid-February 2006 for the quarter ending December 31, 2005.*

Nickel and TPA Projects Nearing Construction: Forthcoming "Advertise for Construction Bid" Projects

Advertisement Performance Expectations for projects to be advertised between January 1, 2006 and June 31, 2006

Analysis:

In the periods from January 1, 2006 to June 31, 2006, 15 Nickel Projects and 9 Transportation Partnership Account projects are scheduled to be advertised for construction. Of this total of 24 projects, 75% (all but six) are being advertised on schedule at or in advance of their schedules. This information has been previously reported in the Reporting on Capital Project Delivery Programs Folio. The six projects not making schedules are:

SR 516, 208th and 209th Ave SE (Nickel)		
The advertisement date has been delayed 1 month from December 2005 to January 2006.	This project now is on Ad and is awaiting bid opening in February 2006. The Ad date for this project was delayed one month because right of way had not been certified for all parcels.	
I-90, Two-Way Transit and HOV (Nickel)		
The advertisement date has been delayed 5 quarters from December 2004 to January 2006.	This project has been delayed to provide for the issuance of the draft Environmental Impact Statement. This Draft EIS allowed the design to be completed by October 2005. This change was reported in the December 31, 2003 Gray Notebook.	
SR 522/I-5 to SR 405 Multimodal Project (Nickel)		
The advertisement date has been delayed 9 quarters from November 2003 to March 2006.	WSDOT has accommodated requests of local and state elected officials for the City of Lake Forest Park to coordinate this project with local improvement work in order to improve efficiencies and reduce traffic disruptions from construction. However, issues with right of way and access planning for local businesses continue and threaten further delays in an ad date that now is only tentatively set for March 2006 (GNB for 9/30/05 at page 7-8 ("Watch List").	Begin coordination with local jurisdictions and the public as early as possible in the preliminary design phase.
SR 270, Pullman to Idaho State Line (Nickel)		
The advertisement date has been delayed 4 quarters from January 2005 to March 2006.	This project was delayed due to the need for re-design to keep project within budget after geological conditions, right of way cost increases due to rezoning, and Corp. of Engineers mitigation negotiation. (Delayed 14 months) The redesign work led to the delay of the originally scheduled advertisement date from January 2005 to March 2006.	This is a good example of WSDOT adapting the project scope to meet available funding while still meeting the project intent.
SR 99, S 284th to S 272nd St – HOV (Nickel)		
The advertisement date has been delayed 2 quarters from December 2005 to April 2006.	The advertisement date for this project has been delayed because of right of way plan revisions, longer appraisal reviews and more extensive negotiations on some parcels than previously anticipated.	
U.S. 12, Naches River - Flood Plain Work (TPA)		
It is proposed to delay the advertisement date 6 quarters from June 2006 to October 2007. If the proposal is approved this project will be removed from the list of projects nearing construction.	This project was scheduled to go to advertisement in October 2007. After delay for Initiative 912 uncertainty, WSDOT worked with local agencies and designed this project with an accelerated advertisement date of June 2006. When the cost estimates were refined for the current design, the project exceeded the budgeted amount of $1.6 million. To stay within budget, the project will need to be redesigned. The additional time necessary for redesign will require the original advertisement date of October 2007 to be maintained.	This is a good example of WSDOT adapting the project scope to meet available funding while still meeting the project intent.

Nickel Program: Schedule Milestone Tracking

Nickel Project Results from July 1, 2005 through December 31, 2005 and cumulatively from 2003 to December 31, 2005:

Milestone	Number of Projects with this Milestone	Number of Scheduled Milestones Achieved	Number of Scheduled Milestone Not Achieved	Achievement Rate
Project Definition				
Two Quarters 7/1 to 12/31/05	0	0	NA	NA
Cumulative 2003 - Dec. 05	*25*	*25*	*0*	*100%*
Begin Engineering Phase				
Two Quarters 7/1 to 12/31/05	1	1	0	100%
Cumulative 2003 - Dec. 05	*56*	*52*	*4*	*93%*
Environmental Documentation Complete				
Two Quarters 7/1 to 12/31/05	2	2	0	100%
Cumulative 2003 - Dec. 05	*25*	*22*	*3*	*88%*
Right of Way Certification				
Two Quarters 7/1 to 12/31/05	7	6	1	86%
Cumulative 2003 - Dec. 05	*18*	*13*	*5*	*72%*
Advertise Project				
Two Quarters 7/1 to 12/31/05	7	3	4	43%**
Cumulative 2003 - Dec. 05	*48*	*37*	*11*	*77%*
Operationally Complete				
Two Quarters 7/1 to 12/31/05	7	7	0	100%
Cumulative 2003 - Dec. 05	*20*	*19*	*1**	*95%*

Analysis:

- Milestones are indicators of progress in the project delivery cycle but are not measurements of delivery effectiveness.
- A slipped milestone may not affect the date the project is operationally complete, other milestones, project schedule, and/or cost.

Data Notes: *Advertise Project* and *Operationally Complete* are on-time if completed within the scheduled baseline calendar quarter (consistent with the GNB). All other milestones are reported as on-time if they are completed within +/- 6 weeks of baseline date. *For milestone definitions, see backup slide.*
*This late project was reported on in the last GMAP presentation. **See Slide 4.

Action	Who	Date
Analyze slippages and look for preventable trends.	Project Control and Reporting Director	March 2006

Transportation Partnership Account: Scheduled Milestone Tracking

What is WSDOT's schedule milestones record for TPA projects?

TPA Project Results from July 1, 2005 through December 31, 2005[1]

Milestone	Number of Projects with this Milestone	Number of Scheduled Milestones Achieved	Number of Scheduled Milestone Not Achieved	Achievement Rate
Project Definition				
Two Quarters 7/1 to 12/31/05	57	38	19	67%
Begin Engineering Phase				
Two Quarters 7/1 to 12/31/05	111	32	79	29%
Environmental Documentation Complete				
Two Quarters 7/1 to 12/31/05	15	15	0	100%
Right of Way Certification				
Two Quarters 7/1 to 12/31/05	8	8	0	100%
Advertise Project				
Two Quarters 7/1 to 12/31/05	18	18	0	100%
Operationally Complete				
Two Quarters 7/1 to 12/31/05	2	2	0	100%

Action/Strategy	Who	Date
Work with each of the WSDOT Regions to re-assess the schedule, budgets and risk factors of each of the projects impacted by I-912. This assessment will be included as part of the 2007-09 budget/program development process. (Using the Statewide Program Management Group to help WSDOT prioritize the projects that need this type of assessment and the level of effort of this assessment.) These assessments will follow the same general model used for the Cost Estimate Validation Process/Cost Risk Assessment process.	Project Control and Reporting Director	On-going

Analysis:

Project Definition and Engineering delays were due to Initiative 912.

WSDOT has addressed projects with immediate delivery concerns by recommending changes to cash flow, schedule milestones and administrative changes to the Office of Financial Management and Legislature for review and action during the current legislative session. These projects include the following:

I-90, Snoqualmie Pass East – Hyak to Keechelus Dam
This project is proposing to advance the advertisement date from October 2010 to October 2009.

I-5 Downtown Bellingham On/Off Ramps – Ramp Reconstruction and I-5/36th Street Vicinity to SR 542 Vicinity
For the purpose of efficiency in delivery and administrations, WSDOT is recommending to consolidate two projects located in Bellingham into a single project. This change does not impact the scope, schedule or budget of the original projects.

U.S. 395, North Spokane Corridor
The 2006 Governor's Supplemental Budget utilized $32 million of TPA funding to complete construction of two North Spokane Corridor projects funded by the Nickel program. This funding is needed as a result of right of way and construction cost escalation. This transfer will ensure the completion of the two projects and will result in a "drivable" section of new highway.

Data Notes: *Advertise Project* and *Operationally Complete* are on-time if completed within the scheduled baseline calendar quarter (consistent with the GNB). All other milestones are reported as on time if they are completed within +/- 6 weeks of baseline date. *For milestone definitions, see backup slide.* [1]The TPA Milestone table is cumulative to date which represents July 1, 2005 through December 31, 2005.

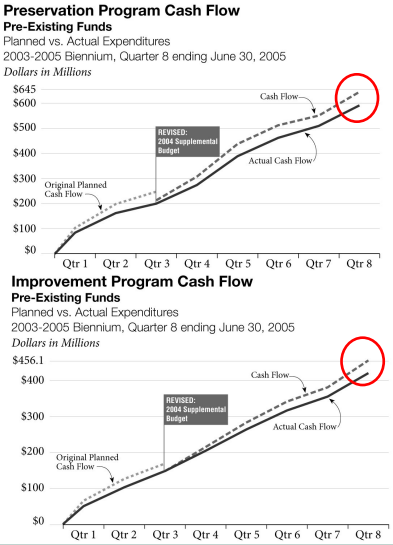
Pre-Existing Funds:

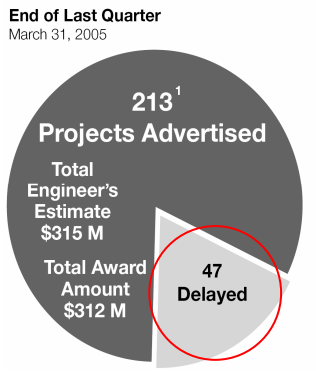
Tracking on-going progress at the level of selected program and sub-program measures

Dollars in Millions

Programmatic Categories	# of Projects 2005-07	Total Sub-Program Estimate for these Projects	Average Project Size
Pavement Preservation	184	$219.0	$1.2
Bridges (Preservation/ Replacement)	56	$68.1	$1.2
Slope Stabilization	17	$18.3	$1.1
Safety (roadside, rumble strips, median cross-over, etc.)	54	$61.2	$1.1
Environmental Retrofit (fish passage improvement, stormwater runoff)	14	$5.5	$0.4
Other Facilities (rest area, weight stations)	39	$146.7	$3.8

Program-wide measures for total 2003-05 biennium:





"Mind the gaps"

What we will eventually graph for each selected programmatic category:

- **Actual vs. Forecast on Number of Projects Beginning Engineering**
- **Actual vs. Forecast on Dates Projects are Advertised for Bids**
- **Actual vs. Forecast on When Projects are "Operationally Complete"**
- **Actual vs. Forecast on Program Cash Flow**

Lessons Learned from Project Delays:

Changes in Design - It is important to realize that it is not always the change, but the timing of the change. The Project Management Executive Order will address this by requiring project management plans that will help get earlier identification of necessary changes.

Right of Way Acquisition - The timeframes required to identify and acquire right of way on projects has been problematic. In many cases, this has been compounded by changes in design that require additional right of way acquisition after the process has been started. As mentioned above, the Project Management Executive Order will help address this issue.

Emergent and Higher Priority Projects - Some projects originally included in the budget are identified programmatically. In some cases, projects originally prioritized based on a pavement preservation or unstable slope model continue to perform adequately, while other projects, not originally budgeted become emerging needs. When this occurs, in lieu of continuing forward with the plan, the department uses "due diligence" to make sure that the right project is addressed at the right time. However, when this occurs, it does reflect as a delayed project.

Actions and Strategies	Who	Date
Continue *Gray Notebook* reporting that has been developed over the last 3 years and confirmed by the working group	Strategic Assessment Office	Quarterly
Create manual systems for gathering data from legacy systems to support detail reporting until automated systems can be installed and data loaded	Project Control and Reporting Director	August 2006
Use variance and exception review to spot adverse project outcomes or trends and perform diagnosis of causes or events	Project Control and Reporting Director	On-going

Pre-Existing Funds: Tracking on-going progress at the level of selected *projects*

Individually Tracked Pre-Existing Fund Projects:

Dollars in Millions

	Cost			Schedule				
	First Legislative Budget	Baseline: Current Legislative Approved	Current WSDOT Estimate of Cost at Final Completion	Scheduled Date to Begin Preconstruction Engineering Date	Scheduled Date to Begin Preconstruction Engineering On-Time	Scheduled Date for Advertisement Date	Scheduled Date for Advertisement On-Time	Scheduled Date to be Operationally Complete
SR 28 – East End of George Sellar Bridge	$9.4 (2004)	$9.5 (2005)	This is the critical number toward which all modern project management is pointed. Today WSDOT engineers and program managers could only back into these values as best as possible without the management information systems that allow schedule and budgets to be used as the basis for value-earned management systems. WSDOT is considering ways to use estimating techniques to approximate these values until new management information systems are installed and project data is loaded.	May-04	X	Oct-08	X	Sep-10
SR 539 - Horton to Tenmile Road	$32.0 (2001-03)	$53.0 (2005)		Oct-90	X	Apr-05	X	Jun-09
SR 202 – SR 520 to Sahalee Way	$36.9 (2001-03)	$70.8 (2005)		May-98	X	Oct-04	Late	Jun-08
U.S. 101 Purdy Creek Bridge Replacement	$6.0 (2001-03)	$11.2 (2005)		Aug-04	Late	Jan-08	X	Jan-10
U.S. 2/Ebey Island Viaduct and Ebey Sl Br	$32.1 (2002)	$35.5 (2005)		Dec-05	X	Apr-08	X	Sep-11
SR 303/Manette Br Bremerton Vic. – Br. Replacement	$25.5 (2001-03)	$25.5 (2005)		Sep-96	X	Jul-07	X	Sep-09

Actions and Strategies	Who	Date
For individual project reporting utilize the same definitions and measures used for reporting on Nickel and TPA projects.	Project Control and Reporting Director	March 2006
Report in the *Gray Notebook* on performance measures for individual projects.	Project Control and Reporting Director	March 2006

Project Delivery Risks: Costs of Construction Materials

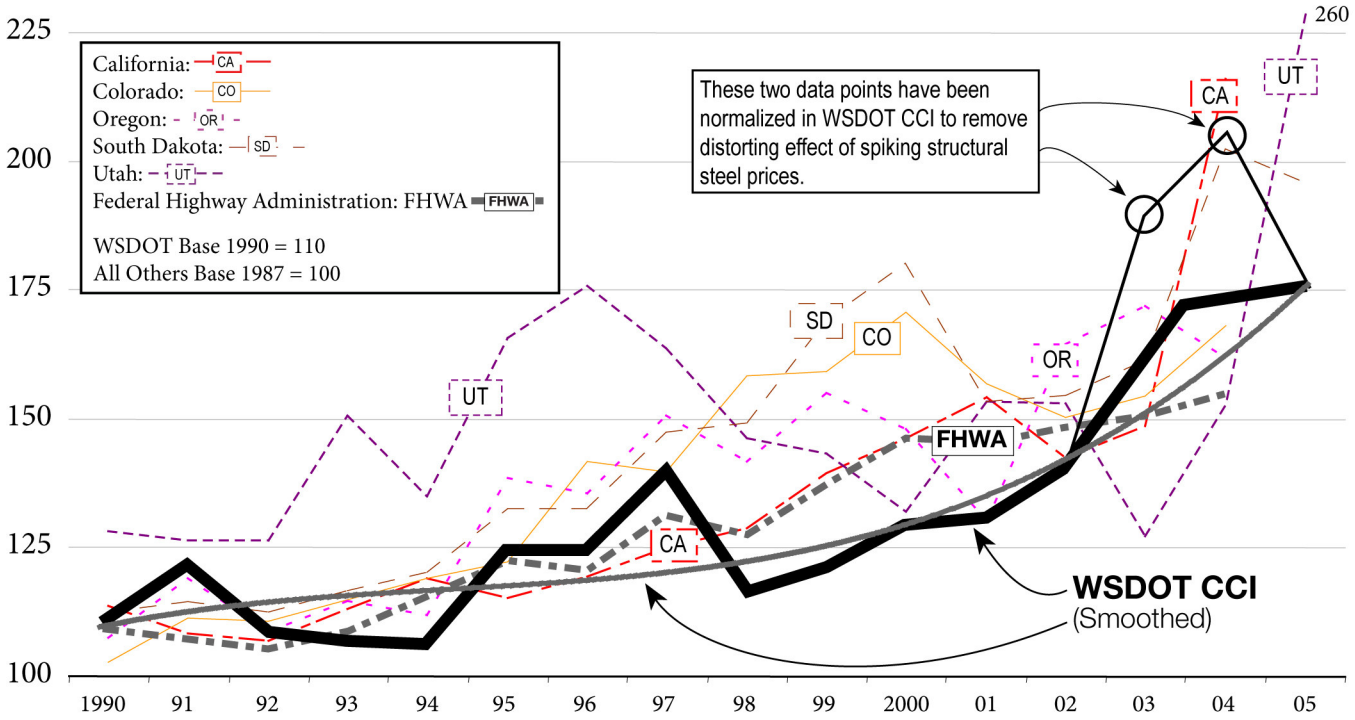
Program Goal: Effective management of increasing inflationary pressures on construction material costs.

Measures: The Construction Cost Index (CCI) helps us track market costs of a "basket" of common highway construction items that are strongly influenced by materials costs.

The following components (weighted as shown) are used to compute the CCI:

- Concrete Pavement 3.2%
- Crushed Surfacing 7.9%
- Roadway Excavation 10.7%
- Structural Concrete 17.4%
- Steel Reinforcing Bar 5.4%
- Structural Steel 6.9%
- Hot Mix Asphalt 48.5%

Data Source: Unit price history from WSDOT bid openings.



Analysis

The eleven-year average growth rate of the CCI from 1990 through 2001 was 1.5% per year. Since 2001, the average growth rate has been 8.0% per year. During this period the CCI has been driven up by several factors, among them: the increasing worldwide demand for construction materials such as steel and cement; rising crude oil prices and other energy supply issues that have driven fuel prices up; and recent increases in costs in national and international construction activity, including (most recently) hurricane rebuilding in the South.

Data notes: No 2005 data is available for California, Colorado, Florida, Oregon, or FHWA.

Project Delivery Risks: Costs of Construction Materials

What Can WSDOT Do to Mitigate Inflationary Materials Costs Pressures on Project Costs?

WSDOT's Approach

Know the "toolbox" of management options and choose wisely among them in individual contracts and program wide. These options are scaled-up versions of what any homeowner faces on a remodel or new house project in the same inflationary environment.

- Time the bid to hit materials cost windows. For example, WSDOT tries to bid paving contracts for early season construction to beat the summer season demand rush on asphalt suppliers.
- Give flexibility to contractors to encourage them to shop for the most economical materials values ("performance or end product specifications").
- Provide early payment provisions ("materials on hand") so contractors can "lock in" materials prices near to the time they bid so as to minimize the inflation risk of their bids.
- Cost Reduction Incentive Proposals (CRIPs) give contractors a portion of savings for their creative ideas on construction approach that will save materials costs.
- Adjust a project scope to "buy-less" within in a fixed envelope of expected project cost.
- Cancel a project that inflation in materials costs has made too expensive. [Not preferred]

What are the real life implications for specific projects?

SR 7, SR 507 to SR 512 – Safety (July 27, 2005) The project had three bidders. The low bid was 24% ($2.6 million) over the Engineer's Estimate.

- Most of the excess over the estimate was haul items (fuel costs and a congested work area), and curbs, islands and sidewalks (concrete prices)

SR 3, SR 303 Interchange (October 19, 2005) There were seven bidders. The low bid was 16.8% ($2.4 million) over the Engineer's Estimate

- Most of the excess over the estimate was the large amount of earthwork (fuel prices) and bridges and retaining walls (concrete and steel prices).

SR 202, SR 520 to Sahalee Way (November 29, 2005) The project had eight bidders. The low bid was 8.9% ($3.3 million) over the Engineer's Estimate.

- Most of the excess over the estimate was earthwork items involving haul (fuel prices), bridges, walls and foundations (steel and concrete) and Hot Mix Asphalt

SR 543, I-5 to International Boundary (January 18, 2006) There were two bidders with prices ranging from $27.3 million to $28.6 million. The low bid was 22.3% ($5 million) over the Engineer's Estimate of $22.3 million.

- Most of the excess over the estimate was retaining walls, noise walls, barrier and pavement (Concrete) and Hot Mix Asphalt. The lack of competition is attributed to the geographical location and mix of work.

The project is pending award if the new project cost requirement is funded in the supplemental budget.

Data Note: WSDOT's experience is similar to experiences – some much worse than ours – reported by other states and cities. See the backup slides for more information.

Project Delivery Risks: Costs of Construction Materials and Competitive Bidding

Contractor Competition in Bidding as a Factor in Achieving Good Prices for Project Construction

WSDOT must advertise projects in an aggressive, competitive construction contracting market to obtain good construction prices.

Program Target: The more bidders – qualified and responsible – the better. Less than 3 is not good.

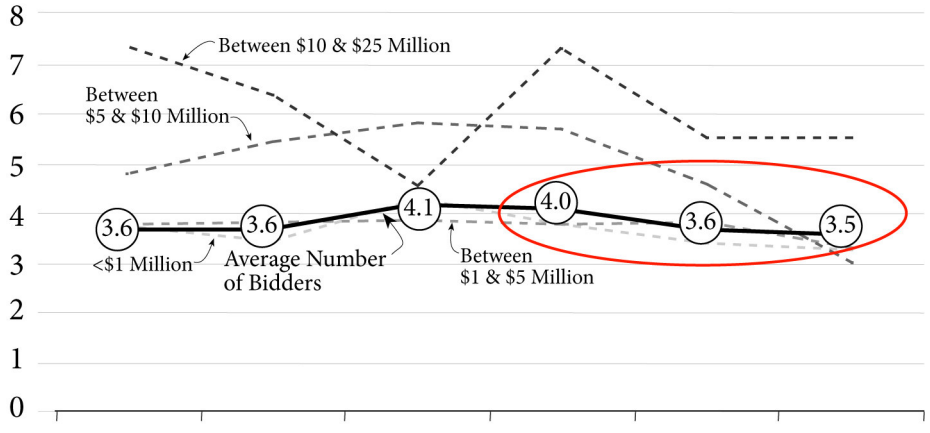
Measures:
Trends in numbers of bidders on every highway construction project.

Total number of contractors bidding to be a prime contractor on WSDOT highway construction projects from year to year. (In backup slides)

Total number of contractors winning the award of WSDOT highway construction projects from year to year. (In backup slides)

Data Source: WSDOT Construction Office

Average Number of Bidders
By Size of Contract



	2000	2001	2002	2003	2004	2005
3 Bidders	24%	23%	16%	24%	23%	33%
4 or more bidders	42%	41%	50%	50%	44%	35%
3 or more bidders	66%	64%	65%	74%	66%	69%

Analysis
- Percent of WSDOT contracts bid by at least 3 firms has been at 67% +/- for six years.
- Percent of WSDOT contracts bid by at least 4 firms has fallen from about 50% in 2002-03 (work was scarce) to about 33% today.
- Percent of WSDOT contracts bid by one firm has fluctuated from 7.7% (2001) to 13.4% (2004)

Project Delivery Risks: Costs of Construction Materials and Competitive Bidding

Contractor Competition in Bidding as a Factor in Achieving Good Prices for Project Construction

In Operating in an Effective Competitive Arena for Contractors:

WSDOT influences:

Generally:

- Fair and efficient practices in contract administration
- Fair and efficient risk allocation in the contracting relationship.
- Communication of current and future contract opportunities to the contracting community; special outreach on unusual or difficult projects

Individual contracting opportunities:

- Bid advertisements scheduled to promote competitive appetite. (For example paving contracts early in the summer construction season).
- Specifications on which contractors can confidently prepare bids and a fair process for responding to questions and requests for clarification.

WSDOT does not influence:

- Overall volume of public and private sector work seeking contractors.
- Contractors' access to key subcontractors and sources of construction material.
- Bonding and other capacity constraints affecting contractor's appetite for work.
- Market trends in the construction industry towards consolidation and shrinkage of number of local firms.

Goal	Actions/Strategies	Who	Date
Maintain Healthy Bidding Environment	Track use of tools that encourage bidders; utilize bidder and industry feedback to identify and respond to trends.	State Construction Engineer	Quarterly analysis, annual report June 2006

Project Delivery Risks: Delays in Certification of Right-of-Way

Are Projects Requiring Property and/or Property Rights Certified on Schedule?

Before a project can be advertised, WSDOT must certify that all property and/or property rights necessary to construct a project have been acquired. A delay in acquiring those rights often leads to a delay in advertising the project for construction bid.

Target: On-time certification of all projects requiring the acquisition of property and/or property rights necessary to construct the projects.

Measure: Percent of projects certified on schedule

Data Source: WSDOT Real Estate Services Office

Analysis:

- In 03-05, out of 68 projects with a right of way element, 20 projects (29%) had advertisement dates that were delayed due to our inability to certify on time.

- Appraisal/Appraisal Review, Negotiations, Relocation, and Condemnation are elements of the right of way process which must be addressed prior to Certification. Despite an increase in the number of parcels acquired due to a growing construction program, condemnation rates have consistently averaged only 5% of the total parcels acquired each year since 2000.

Current Steps to Reduce Delay Costs:

- Delegating appraisal review and administrative settlement authority from headquarters to the regions.
- Raising Appraisal Waiver limits from $10,000 to $25,000 to help reduce the number of appraisals.
- Streamlining the lien release process; this process has been decentralized from headquarters to the regional offices.

(See *Gray Notebook*, June 2005, for more discussion of above.)

Project Delivery Risks: Delays in Certification of Right-of-Way Continued

What Were the Root Causes of the Right of Way Delays on the 20 Projects?

Target: 100% of projects that were delayed due to right of way concerns will have a debriefing on causes as lessons learned.

Measure: Percent of projects analyzed for causes of right of way delays.

Data Source: WSDOT, Real Estate Services Office

27 specific right of way causes were attributed to advertisement delays in the 20 projects and were categorized as follows:

Design Changes
Protracted Negotiations
Schedule Management
Delayed Funding
Utility Accommodation

Analysis:

- **Design Changes** were a factor 41% of the time and occurred in 8 of the projects (40%) requiring right of way. These are attributed to things like, permitting requirements, requests by property owners, and additional design detail determined later in the schedule.
- **Protracted Negotiations** were a factor 26% of the time and occurred in 7 projects (35%) requiring right of way. These are right of way negotiations with railroads, local governments, tribes, and utilities involving bureaucratic processes and in some cases WSDOT reluctance to pursue condemnation.
- **Schedule Management** was a factor 15% of the time and occurred in 4 of the projects (20%). This included inadequate time in the schedule for negotiations, an unanticipated condemnation, difficult negotiations with an out-of-country owner, and a consultant's failure to perform.
- **Delayed Funding,** resulting in a delayed right of way start, was a factor 12% of the time occurring in 3 projects (15%), one of which was eventually cancelled.
- **Utility Accommodation** was a factor 8% of the time occurring in 2 projects (10%) due to delays in identifying existing utilities and related right of way needs.

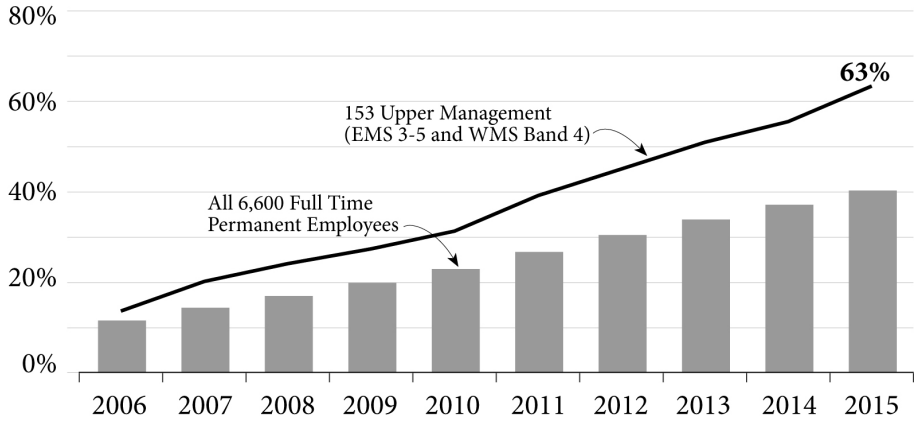
Actions/Strategies	Who	Approximate Due Date
Monthly assessments of completed projects: Track right of way certifications and determine the cause of missed certification dates. Identify strategies to remediate.	Director, Real Estate Services	Monthly, starting January 2006
Real Estate Director will attend quarterly project reviews to monitor project progress and troubleshoot	Director, Real Estate Services	Quarterly Starting March 2006
Create a database that allows tracking of all right of way actions on projects	Director, Real Estate Services	March 2006

Project Delivery Risks: Workforce

Availability of Key Engineering and Project Management Professional in WSDOT's Workforce

WSDOT faces significant potential attrition in the next ten years as a large number of employees become eligible for retirement. The potential attrition is especially high in the classifications that include the most senior key engineering and professional employees who are vital to the project delivery program.

Cumulative Percentages of Employees in WSDOT's Current Workforce who will have Achieved Retirement Eligibility by Each Year of the Coming Decade



Data Notes: Percentages are based on current workforce size of 6,660 employees.

Analysis

By 2015, 40% of all WSDOT's current employees will have become eligible to retire. That percentage is even higher - 63% - for WSDOT's current executive management. Executives are key project delivery leaders. Their retirement will become an increasing problem as WSDOT's engineering program gears up to provide hundreds of Nickel and TPA projects over the next 16 years.

Current Steps to Address Retirement Challenges:

Senior Leader Succession and Development

WSDOT has implemented a Senior Leader Succession and Development program that will strengthen WSDOT's ability to provide future leadership for transportation. This program was implemented in November 2005. Currently, WSDOT is tracking the progress of this program. The first assessment is due June 30, 2006.

Search Services Manager

In December 2005, WSDOT hired a Search Services Manager to conduct recruitments for positions with specialized and unique skill sets. The expected impact of this work is to recruit and hire specialized talent to deliver projects for the department.

Training

WSDOT's technical and project management training programs are essential to maintaining the agency's core competencies.

Project Delivery Risks: Workforce

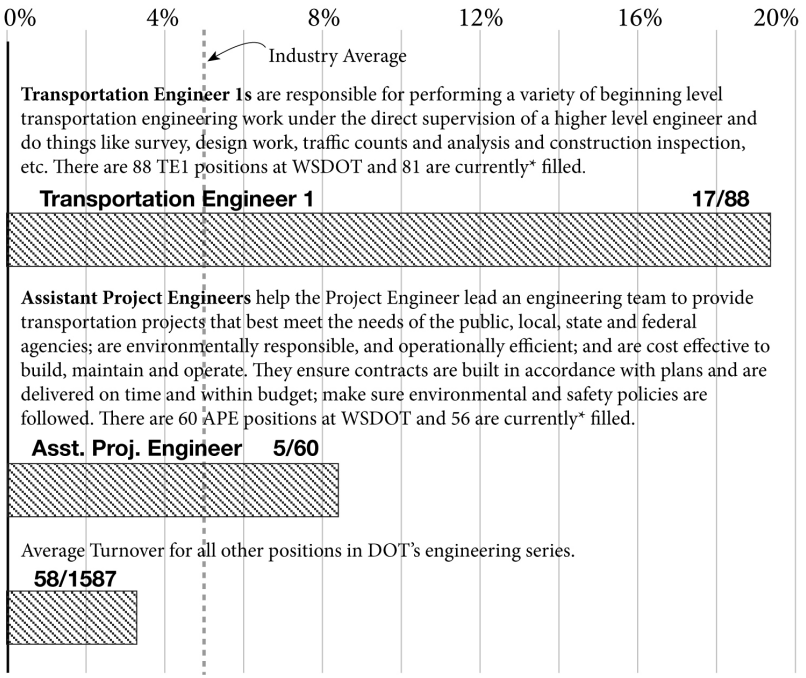
What is the Turnover Trend Among WSDOT's Engineers and How Might it be Improved?

Program Target: Limit turnover of Transportation Engineer 1 and Assistant Project Engineers to the Industry Average

Measures: Percent of Engineers in these categories leaving WSDOT

Data Sources: DOP Data Warehouse

WSDOT Key Class Turnover
December 2004 - November 2005



*1. The turnover is only representing employees who left the agency.
*2. Industry Average is per the U.S. Dept. of Labor.
*3. This data is as of November 30, 2005

Analysis

WSDOT has consistently experienced significantly high turnover (19%) in its key occupational category, Transportation Engineer 1, an entry level into our Transportation Engineer series. WSDOT's overall turnover percentage is 6.61%, above the industry standard of 5%.

The average level of experience in our Project Engineers and Assistant Project Engineers has also decreased as an indirect result of the expansion of the construction program and turnover at the engineering manager levels of the program.

State Salary Survey

WSDOT competes with local agencies such as cities and counties and consulting firms at the local and national levels for engineering professionals at all levels. State Salary surveys show that WSDOT's transportation competitive compensation levels of comparable classifications employed elsewhere. Specifically, the State Department of Personnel's 2000, 2002 and 2004 Salary Surveys list the Transportation Engineer classes lagging in salary by 25, 27.5 and 37.5* percent respectively. Providing more attractive compensation for relevant classifications is key to successful, effective and cost efficient program delivery.

*In 2005, the Engineering Series received 2.5% catch-up as well as 3.2% COLA, closing the gap to 31.5%

See backup slide 6 for more information on workforce challenges across the country.

Project Delivery Risks: Workforce

Actions & Strategies	Who	Date
Career Building/Grooming Implement a WSDOT Apprenticeship Program to attract and hire more diversified candidates and train them to the agency's standard.	Human Resources Manager	May 06
Recruitment Increase salaries for state engineers		
Improve web access for applicants by marketing engineering technician	Human Resources Manager	Internal – Mar 06 External – Jul 06
Implement a WSDOT Transportation Engineer Internship Program to offer college students the opportunity to work and experience the department prior to graduation from college	Human Resources Manager	Jan 06
Develop Mentorship Program working with cities, counties and consulting engineers in local school districts to stimulate student interest in Civil Engineering careers.	Human Resources Manager	Jun 07
Retention Increase salaries for state engineers		
WSDOT to identify opportunities for tools to increase retention.	Human Resources Manager	Mar 06
Complete the retention study for the Transportation Engineer 1 Job Class. Present to the WSDOT executive team for action.	Human Resources Manager	Mar 06
Develop an anonymous online exit interview survey program	Human Resources Manager	Mar 06

See backup slide 7 for more information on general engineering consultants.

Backup Slides Index

Backup Slide	Title	Correlates with Main Slide Number
1	Recent "Construction Complete" Results: Budget Performance for Pre-Existing Funds	2
2	Recent "Advertise for Construction Bid" Results	4
3	Scheduled Milestone Definitions	6 and 7
4	Materials Costs, Competitive Environment and Bidding Results – Others' Experiences	11
5	Competitive Market Structure for WSDOT Highway Construction Opportunities	12 and 13
6	The Workforce Challenge Across the Country	17
7	Project Funding Web Snapshot	18